English Translation of the Amendments under PCT Article 34 as originally filed

change detection means of detecting whether an image to be processed is changed exceeding a predetermined criterion;

compression means including a time management means of managing a predetermined time, wherein the compression means compresses said image so that a compression degree may be higher when a detection result by said change detection means indicates that said image is changed exceeding said predetermined criterion, and when the case where the detected result by said change detection means indicates that said image is not changed exceeding said predetermined criterion elapsed by said predetermined time, compresses said image so that the compression degree may become lower; and

output means of outputting said compressed image.

The second aspect of the present invention is the transmitting apparatus according to the first aspect of the present invention, wherein

said image to be processed is temporarily stored in an image memory, and

said change detection means periodically reads said image from said image memory to compare said before and after images, and detects whether said image to be processed is changed exceeding said predetermined criterion.

The third aspect of the present invention is the transmitting apparatus according to the first aspect of the present invention, wherein said predetermined criterion is the number of pixels changed between said before image and said after image.

image that is generated by said image signal generating apparatus is zone-devided, said change detection means detects whether said image to be processed is changed exceeding said predetermined criterion, and

for every said block in which it has been detected whether said image to be processed is changed exceeding said predetermined criterion, said compression means compresses said image so that the compression degree may become higher when said detection result by said change detection means indicates that said image is changed exceeding said predetermined criterion elapsed by said predetermined time, compresses said image so that the compression degree may become lower when said detection result by said change detection means indicates that said image is changed not exceeding said predetermined criterion.

The eleventh aspect of the present invention is an image processing system comprising:

an image signal generating apparatus of generating an image;

a transmitting apparatus including change detection means of detecting whether said image to be processed that is generated by said image signal generating apparatus is changed exceeding a predetermined criterion, compression means of compressing said image so that a compression

degree may be higher when said detection result by said change detection means indicates that said image is changed exceeding said predetermined criterion, and when said detection result by said change detection means indicates that said image is changed not exceeding said predetermined criterion elapsed by said predetermined time, compressing said image so that the compression degree may become lower, and transmission means of transmitting said compressed image, wherein said compression means comprises a time management means of managing said predetermined time; and

a receiving apparatus including expanding means of expanding said transmitted image utilizing information regarding compression of said image by said compression means, and output means of outputting said expanded image.

The twelfth aspect of the present invention is the image display system according to the eleventh aspect of the present invention, wherein

said transmitting apparatus also serves as said image signal generating apparatus, and

said transmitting apparatus and said image signal generating apparatus are a personal computer.

The thirteenth aspect of the present invention is the image display system according to the eleventh aspect of the present invention, wherein said receiving apparatus is a projector.

The fourteenth aspect of the present invention is an image processing method comprising:

change detection step of detecting whether an image to be processed is changed exceeding a predetermined criterion;

compression step including a time management step of managing a predetermined time, wherein the compression step compresses said image so that a compression degree may become higher when a detection result by said change detection step indicates that said image is changed exceeding said predetermined criterion, and when said detection result by said change detection means indicates that said image is changed not exceeding said predetermined criterion elapsed by said predetermined time, compressing said image so that compression degree may become lower; and

output step of outputting said compressed image.

The fifteenth aspect of the present invention is a program of causing a computer to function, in the transmitting apparatus according to the first aspect of the present invention, as:

change detection means of detecting whether an image to be processed is changed exceeding a predetermined criterion;

compression means including a time management means

of managing a predetermined time, wherein the compression means compresses said image so that a compression degree may become higher when a detection result by said change detection means indicates that said image is changed exceeding said predetermined criterion, and when said detection result by said change detection means indicates that said image is changed not exceeding said predetermined criterion elapsed by said predetermined time, compresses said image so that compression degree may become lower; and

output means of outputting said compressed image.

The sixteenth aspect of the present invention is a recording medium storing the program according to the fifteenth aspect of the present invention, wherein said recording medium is computer processable.

The seventeenth aspect of the present invention is a transmitting apparatus including

change detection means of detecting whether an image to be processed is changed exceeding a predetermined criterion,

compression means of compressing said image so that the compression degree of a predetermined rectangular region including the changed region may become higher when a detected result by said change detection means indicates that said image is changed exceeding said predetermined

criterion, and when the detected result by said change detection means indicates that said image is not changed exceeding said predetermined criterion, of compressing said image so that a compression degree of a rectangular region including all of said rectangular regions among former images than said image may become lower,

output means of outputting said image in the predetermined rectangular region including the changed region when the detected result by said change detection means indicates that said image is changed exceeding said predetermined criterion, and when the detected result by said change detection means indicates that said image is not changed exceeding said predetermined criterion, of outputting said image in said rectangular region including all of said rectangular regions.

The eighteenth aspect of the present invention is a transmitting apparatus according to the seventeenth aspect of the present invention, wherein

said image to be processed is temporarily stored in an image memory, and

said change detection means periodically reads said image from said image memory to compare said before and after images, and detects whether said image to be processed is changed exceeding said predetermined criterion.

The nineteenth aspect of the present invention is a transmitting apparatus according to the seventeenth aspect of the present invention, wherein said predetermined criterion is the number of pixels changed between said before and after images.

The twentieth aspect of the present invention is a transmitting apparatus according to the seventeenth aspect of the present invention, wherein said predetermined criterion is used to determine that said image is not changed, if the region where said image is changed is smaller than a predetermined size in area, and is in the same position as the previously detected region where said image is changed.

the predetermined rectangular region including said changed region may become higher, and compresses said image so that the compression degree of a region other than said rectangular region may become lower.

The twenty-seventh aspect of the present invention is an image processing system including,

an image signal generating apparatus of generating an image,

a transmitting apparatus including change detection means of detecting whether the image to be processed, which is generated by said image signal generating apparatus, is changed exceeding a predetermined criterion, compression means of compressing said image so that a compression degree of the predetermined rectangular region including said changed region may become higher when the detected result by said change detection means indicates that said image is changed exceeding said predetermined criterion, and when the detected result by said change detection means indicates that said image is not changed exceeding said predetermined criterion, of compressing the image so that a compression degree of a rectangular region including all of the rectangular regions among former images than said image may become lower, and output means of outputting said image in the predetermined rectangular region including said changed region when the detected result by said change

change detection means of detecting whether an image to be processed is changed exceeding a predetermined criterion,

compression means of compressing said image so that a compression degree of the predetermined rectangular region including said changed region may become higher, when the detected result by said change detection means indicates that said image is changed exceeding said predetermined criterion, and when the detected result by said change detection means indicates that said image is not changed exceeding said predetermined criterion, of compressing the image so that a compression degree of a rectangular region including all of said rectangular regions among former images than said image may become lower,

output means of outputting said image in the predetermined rectangular region including said changed region when the detected result by said change detection means indicates that said image is changed exceeding said predetermined criterion, and when the detected result by said change detection means indicates that said image is not changed exceeding said predetermined criterion, outputting said image in said rectangular region including all of said rectangular regions.

The thirty-second aspect of the present invention is a recording medium of storing the program according to the

embodiment, there are provided change detection means of detecting whether an image to be processed is changed exceeding a predetermined criterion; compression means of compressing the image so that a compression degree may be higher when a detection result by the change detection means indicates that the image is changed exceeding the predetermined criterion, and when the detection result by the change detection means indicates that the image is changed not exceeding the predetermined criterion, of compressing the image so that the compression degree may become lower; and output means of outputting the compressed image, so that the image can be compressed smaller in volume at high speed while preventing the image from the degradation.

Moreover, according to the present embodiment, there are provided change detection means of detecting whether an image to be processed is changed exceeding a predetermined criterion; compression means of compressing the image so that a compression degree of the predetermined rectangular region including the changed region may become higher when the detected result by the change detection means indicates that the image is changed exceeding the predetermined criterion, and when the detected result by the change detection means indicates that the image is not changed exceeding the predetermined criterion, of compressing the

transceiver 34.

The projector 31 is provided with the image information receiving means 50, compressed image receiving means 51, image expanding means 52, previous screen updating means 53, and display means 54.

The image receiving means 50 is means of receiving the image information.

The compressed image receiving means 51 is means of receiving the compressed image.

The image expanding means 52 is means of expanding the compressed image based on the information from the image information receiving means 50.

The previous screen updating means 53 is means of updating the image memory for only the section updated from the previous screen based on the image information obtained from the image information receiving means 50.

The display means 54 is means of displaying the information in the image memory.

In this embodiment, the updated region calculating means 42 is the example of the change detection means of the present invention, the time management means 45, the compressing method selecting means 43, the updating region retrieving means 44, and the image compression means 47 are the examples of the compression means of the present invention, and the image information transmitting means

What is Claimed is:

1. (Amended) A transmitting apparatus comprising:

change detection means of detecting whether an image to be processed is changed exceeding a predetermined criterion;

compression means including a time management means of managing a predetermined time, wherein the compression means compresses said image so that a compression degree may be higher when a detection result by said change detection means indicates that said image is changed exceeding said predetermined criterion, and when the case where the detected result by said change detection means indicates that said image is changed not exceeding said predetermined criterion elapsed by said predetermined time, compresses said image so that the compression degree may become lower; and

output means of outputting said compressed image.

2. (Amended)The transmitting apparatus according to claim 1, wherein

said image to be processed is temporarily stored in an image memory, and

said change detection means periodically reads said image from said image memory to compare said before and after images, and detects whether said image to be

processed is changed exceeding said predetermined criterion.

3. The transmitting apparatus according to claim 1, wherein said predetermined criterion is the number of pixels changed between said before image and said after image.

4. The transmitting apparatus according to claim 1, wherein said predetermined criterion is a level by which to determine that said image has not been changed, if said region where the image is changed is smaller than a predetermined size in area, and is in the same position as the previously detected region where the image was changed.

5. The transmitting apparatus according to claim 1, wherein said compression means compresses said image by changing the compression ratio of said image according to a degree of change in said image detected by said change detection means.

6. The transmitting apparatus according to claim 1, wherein

while said image is not changed, except for every predetermined period, said compression means does not compress said image and said output means does not output said image, and

said compression means compresses said image at every

predetermined period and said output means outputs said image at every predetermined period.

7. The transmitting apparatus according to claim 6, wherein said compression means does not compress said image when said predetermined period is repeated for a predetermined number of times or more, and said output means does not output said image when said predetermined period is repeated for said predetermined number of times or more.

8. The transmitting apparatus according to claim 7, wherein when compressing said image at said every predetermined period, said compression means compresses said image to be compressed later at a compression ratio lower than a compression ratio of said image compressed earlier.

9. The transmitting apparatus according to claim 1, wherein

said image to be processed is that generated by an image signal generating apparatus, and

said image signal generating apparatus is a personal computer.

10. (Amended) The transmitting apparatus according to claim 1, wherein

for each of a plurality of blocks into which said image that is generated by said image signal generating

apparatus is zone-devided, said change detection means detects whether said image to be processed is changed exceeding said predetermined criterion, and

for every said block in which it has been detected whether said image to be processed is changed exceeding said predetermined criterion, said compression means compresses said image so that the compression degree may become higher when said detection result by said change detection means indicates that said image is changed exceeding said predetermined criterion elapsed by said predetermined time, compresses said image so that the compression degree may become lower when said detection result by said change detection means indicates that said image is changed not exceeding said predetermined criterion.

11. (Amended) An image processing system comprising:

an image signal generating apparatus of generating an image;

a transmitting apparatus including change detection means of detecting whether said image to be processed that is generated by said image signal generating apparatus is changed exceeding a predetermined criterion, compression means of compressing said image so that a compression degree may be higher when said detection result by said change detection means indicates that said image is changed

exceeding said predetermined criterion, and when said detection result by said change detection means indicates that said image is changed not exceeding said predetermined criterion elapsed by said predetermined time, compressing said image so that the compression degree may become lower, and transmission means of transmitting said compressed image, wherein said compression means comprises a time management means of managing said predetermined time; and

a receiving apparatus including expanding means of expanding said transmitted image utilizing information regarding compression of said image by said compression means, and output means of outputting said expanded image.

12. The image display system according to claim 11, wherein

said transmitting apparatus also serves as said image signal generating apparatus, and

said transmitting apparatus and said image signal generating apparatus are a personal computer.

13. The image display system according to claim 11, wherein said receiving apparatus is a projector.

14. (Amended) An image processing method comprising:

change detection step of detecting whether an image to be processed is changed exceeding a predetermined criterion;

compression step including a time management step of

managing a predetermined time, wherein the compression step compresses said image so that a compression degree may become higher when a detection result by said change detection step indicates that said image is changed exceeding said predetermined criterion, and when said detection result by said change detection means indicates that said image is changed not exceeding said predetermined criterion elapsed by said predetermined time, compressing said image so that compression degree may become lower; and

output step of outputting said compressed image.

15. (Amended) A program of causing a computer to function, in the transmitting apparatus according to claim 1, as:

change detection means of detecting whether an image to be processed is changed exceeding a predetermined criterion;

compression means including a time management means of managing a predetermined time, wherein the compression means compresses said image so that a compression degree may become higher when a detection result by said change detection means indicates that said image is changed exceeding said predetermined criterion, and when said detection result by said change detection means indicates that said image is changed not exceeding said predetermined

criterion elapsed by said predetermined time, compresses said image so that compression degree may become lower; and

output means of outputting said compressed image.

16. A recording medium storing the program according to claim 15, wherein said recording medium is computer processable.